1024-119 Improved Visualization of the Aortic Arch By Transesophageal Echocardiography Using a New Miniaturized Probe

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Transesophageal echocardiography (TEE) has become one of the diagnostic modalities of choice in the assessment of patients with suspected aortic dissection. However, an important limitation of TEE is the inability to completely visualize the aortic arch due to to the interposition of the air-filled left mainstem bronchus. Visualization of this aortic segment is crucial in distinguishing the extent of dissection and in guiding surgical management. We have recently used a prototype TEE probe small enough to be introduced transnasally (32 element monoplane probe) which has a 45º bevel to the imaging surface. Preliminary experience with this probe suggested improved visualization of the aortic arch. We therefore prospectively studied 48 patients undergoing transesophageal echocardiography and compared the transnasal visualization of the aortic arch to that of a standard 5 MHz multiplane transesophageal probe. Patients were imaged with both instruments and images were reviewed by two experienced echocardiographers for the extent and clarity of aortic arch visualization. In 17 patients, the aortic arch was visualized equally well with both probes. In 31 of 48 patients, the transnasal probe facilitated improved visualization of the aortic arch, and in no cases were the arch images obtained with the miniaturized probe of inferior quality. *Conclusion:* A new miniaturized monoplane transesophageal probe with a beveled imaging head facilitates superior visualization of the aortic arch. This may prove to be a valuable tool in the transesophageal echocardiographic evaluation and delineation of aortic dissection.

1024-120 Aortic Plaque on Transesophageal Echocardiography Predicts Cardiovascular Events and Mortality in Stroke

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Aortic atherosclerosis has been suggested as a marker to cerebrovascular and coronary disease. The prognosis of aortic plaque (AP) identified on transesophageal echocardiography (TEE) in stroke patients is unknown. We followed 37 stroke patients without atrial fibrillation, valvular disease, recent myocardial infarction, or severe left ventricular dysfunction for 14 + 8 months. 34 patients had brain imaging, 33 patients had noninvasive carotid imaging, and all patients had omniplane TEE. Brain Imaging classified stroke location as anterior (18), posterior (7), lacunar (9). Carotid imaging found > 50% stenosis in either carotid artery in 10/33 patients. TEE identified one or more potential cardiac sources of emboli (CSE) (thrombus 8, spontaneous echo contrast 5, patent foramen ovale 8, mitral valve abnormality 13) in 23/37 patients and AP (> 4 mm in 9, 1–3 mm in 17) in 26/37 patients. Kaplan-Meier analysis found no significant differences for either cardiovascular events or deaths in groups based on stroke location or carotid imaging. CSE on TEE predicted deaths ($p = 0.06$) but not events. AP on TEE, however, predicted both events ($p < 0.003$) and deaths ($p < 0.04$). All patients without AP were event-free (negative predictive value = 100%). Severity of AP did not change prognosis. In conclusion, aortic plaque identified on TEE predicts cardiovascular events and deaths in stroke patients better than stroke location or carotid stenosis.

1024-121 Multiplane Transesophageal Imaging: What is the Price for Improved Spatial Orientation? A Review of 2916 Consecutive Studies

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We have previously reported that the multiplane transesophageal probe provides a more comprehensive examination of cardiac structures than the biplane probe. However, the multiplane probe tip is larger than the biplane and may be responsible for more complications. We reviewed 2916 consecutive transesophageal echocardiographic examinations between Jan 1992 and Mar 1996 to identify complications and failed esophageal intubation. *Results:* Multiplane probe was used in 1274 studies and biplane in 1642. Complications or failed intubation occurred in 86 studies (2.9%). There were 53 complications (1.8%) and 40 failed intubations (1.4%). Seven patients had both. Complications were tracheal intubation or bronchospasm (9), bleeding (9), angina (2), pulmonary edema (2), death (1) and minor adverse events (30). These were unrelated to the choice of probe (multiplane 2%; biplane 1.7%, p = NS). Failure of intubation was more common with multiplane than with biplane (2.3% vs 0.7% p = 0.0003, Odds Ratio 3.5). Main reasons for failure were cervical spondylosis (16) and hypersensitive pharynx despite analgesia and sedation (13). Of 20 cases of failed intubation with multiplane, 17 (85%) were successful with biplane probe. *Conclusions:* Serious complications with transesophageal echocardiography although infrequent, do occur. Compared to the biplane probe, the multiplane probe carried a 3.5-fold increased risk of failed intubation. Data is needed to determine whether the newer multiplane probes with smaller imaging tips can match the high rate of successful intubation of the biplane probe.

1025 Stress Echocardiography/Valvular Heart Disease

Tuesday, March 18, 1997, 3:00 p.m.–5:00 p.m.
Anaheim Convention Center, Hall E
Presentation Hour: 3:00 p.m.–4:00 p.m.

1025-83 Dobutamine Stress Echo Test Results: Relationship to Coronary Stenosis Severity

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Quantitative coronary angiography has been shown to allow the functional assessment of coronary stenosis. The relationship between dobutamine stress echo (DSE)-induced wall motion abnormalities and stenosis severity however remains controversial. We quantified stenosis severity by computerized angiography in 30 patients (mean age 58 y, 23 male) undergoing DSE, with single vessel coronary artery disease (≥ 50% minimum luminal reduction) and stable angina. All patients had normal resting left ventricular function and no previous history of myocardial infarction. Dobutamine was infused in incremental doses (5–40 μg/kg/min) with the infusion of atropine (1 mg) if the 85% of the maximal predicted heart rate was not achieved. Positive DSE was defined as occurrence of wall motion abnormality. The left ventricle was divided into 16 segments and the walls were scored as: 1 = normokinetic, 2 = hypokinetic, 3 = akinetic, and 4 = dyskinetic. 18 patients developed wall motion abnormalities during DSE (group 1) and 12 did not (group 2). The results of two groups were:

	Baseline			Peak dobutamine			St > 80%
	BP	HR	Score	BP	HR	Score	
Group 1	135±3.8	71±2.5	16.5±0.3	125±4.6	152±3.2*	19.7±0.4*	13/18 (72%)
Group 2	126±3.8	77±4.0	16.0±0.0	122±8.3	153±5.4*	16.0±0.0$^+$	3/12 (25%)$^+$

*$p < 0.01$ vs baseline, $^+p < 0.01$ vs group 1, St = stenosis with > 80% severity, BP = blood pressure, HR = heart rate

It is concluded that in patients with single vessel disease, positive DSE is usually associated with a stenosis severity > 80%. Moderate stenosis (severity ≤ 80%) is more often associated with negative DSE results in single vessel disease. DSE may be an alternative method for assessing the physiologic significance of coronary stenosis severity and not just simply the presence or absence of coronary artery disease.

1025-84 Dobutamine Doppler-Echocardiographic Test in Dilated Cardiomyopathy: Assessment of "Contractile Reserve"

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Recently, some Authors demonstrated that in dilated cardiomyopathy (DCM) β-adrenergic contractile responsiveness, assessed after infusion of Dobutamine (DBT), is helpful in predicting prognosis. The aims of this study are to evaluate, by means of Doppler echocardiography during DBT infusion: 1) the correlations between the patterns of response to DBT and clinical and echocardiographic data; 2) the possible relationship between Dobutamine response and improvement during the follow up (FU) in tailored medical treatment (digitalis, diuretics, ACE-inhibitors and β blockers). 49 pts (mean age 44 ± 14 yrs; M 69%; LVEF < 0.45; sinus rhythm) with diagnosis of DCM underwent DBT infusion (range 5–30 μg/Kg/min). 34 pts (69%) responded to DBT (↑LVEF > 0.10; disappearance of restrictive filling pattern at maximal dosage of DBT); the maximal increase in LVEF was 0.33; restrictive filling pattern disappeared in 8/10 pts. The main statistically significant differences between the "responders" (group 1) and "non responders" (group 2) are reported in Tab I. In the FU, improvement was defined by a score (LVEF↑ ≥ 0.10, LVEDD↓ ≥ 10%, regression of restrictive filling pattern, NYHA functional class ↓ ≥ 1, CTR↓ ≥ 10% and exercise time ≥ 2 min). During the FU, available in 25 pts., 9 out of 17 pts (53%) of the group 1 improved, versus 2 out of 8 pts (25%) of group 2 (p = 0.18).